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XXX.—*Descriptions of some new or little-known Species of Oaks from North-west America.* By ROBERT BROWN, of Campster, A.M., Ph.D., F.R.G.S., President of the Royal Physical Society, Edinburgh.

1. *Quercus Sadleriana*, R. Br. Campst.*

Leaf large, old ones broadly elliptical, young ones more ovate, acute at base and apex, edges remotely serrate, teeth submucronate, apex pointed; nerves distinct on superior surface, very prominent inferiorly, lateral nerves reaching the margin in the teeth; superior surface dark green, inferior paler (fading in drying), glabrous above and below; length $4\frac{3}{4}$ inches, breadth 3 inches, length of petiole $\frac{3}{4}$ inch (average of six leaves). *Fruit* shortly pedunculate, solitary, rarely twins; glans projecting more than half out of the cup; glans small, ovate, or in some cases compressed at both ends, terminating in a short blunt point, pale brown in colour; length $\frac{1}{2}$ – $\frac{3}{4}$ inch, diameter $\frac{1}{2}$ – $\frac{2}{3}$ inch: cup deepish, narrow inferiorly, expanding superiorly, very thin, the edges bevelling off; scales ovate, closely imbricate and appressed, swollen at base, covered with white pubescence, the lower whorls large and most distinct, the upper near the edge of the cup smaller and less distinct; depth of cup $\frac{1}{2}$ inch or less, breadth superiorly $\frac{2}{3}$ inch, length of peduncle $\frac{1}{3}$ inch. *Flowers* unknown. *Maturation* annual (?).

Hab. A spur of the Siskiyou Mountains, in Oregon, close to the California boundary line (lat. 42° N.), between Sailors' Diggings in Oregon and Smith's River in California, on the Crescent City trail.

* *Robertus Brown Campsteriensis*: by the advice of M. Alphonse DeCandolle, I have adopted this distinctive mark for species described by me (*vide* Trans. Bot. Soc. Edin. vol. x. p. 437).

The species never attains a greater size than a shrub about 4 feet in height. I found it, in September 1865, growing in patches in the locality named, about 2000 feet above the level of the sea, but producing fruit very sparingly, and described it in my notes as "*Quercus*, sp. nov., No. 253," in 'The Farmer,' May 16, 1866. In the form of the leaf it is not unlike the chestnut-form of *Quercus densiflora*, Hook. & Arn.*; but it differs widely from that species in the form of the cup, which is not covered with recurved hooked scales, but with ovate appressed scales, tumid at the base, so as to look, as I have described them in my field-notes, like flattened tubercles. A very competent authority, Prof. Ersted, in a private note to me regarding some specimens of this oak which were submitted to him, remarks:—"Your *Q. Sadleriana* is most interesting. The cupula is very peculiar, with its thin margin. I think it is nearest *Q. Griffithii*, Hook. f. & Thoms.†, from the Himalayas. There is none of the American species which it resembles." It comes therefore under Ersted's third group‡ (Serratae) of his second section (*Prinus*) of the subgenus *Lepidobalanus* of the restricted genus *Quercus*.

I name it in honour of Mr. John Sadler, Assistant Secretary of the Botanical Society, and Assistant to the Professor of Botany in the University of Edinburgh.

2. *Quercus Erstediana*, R. Br. Campst.

Leaf small, oblong or obovate, petiolate, with from three to five rounded, shallow, acutely cut lobes on either side; base acute, inclined to be unequal; veins very prominent inferiorly, and reaching the edge at the termination of the lobes; glaucous above, inclining to pubescence inferiorly; dark glistening green above, paler brownish white or cinereous beneath; length $2\frac{1}{8}$ inches, breadth $1\frac{1}{4}$ inch, length of petiole $1\frac{1}{4}$ inch. *Fruit* solitary, rarely in twins (in which case the second fruit is usually dwarfed or abortive), supported on a moderately long, stout peduncle; glans large, ovate, flattened at lower end, terminating superiorly in an elongated conical point, overtopping cup $\frac{3}{4}$ of length, brown in colour, testa thin; length $1\frac{1}{4}$ inch, diameter $\frac{3}{4}$ inch: cup hemispherical, shallow, tubercular in appearance; inside dark brown, and covered with a slight whitish pubescence; walls thick, thinner superiorly; scales ovate (occasionally subulate), the base much swollen, so as to give the exterior of the cup the tubercular

* Botany of Beechey's Voyage, p. 391.

† De Candolle's 'Prodromus,' vol. xvi. p. 14.

‡ "Bidrag til Egeslægtens Systematik," Naturh. Forening Vidensk. Medd. i Kjöbenhavn, 1866, p. 68.

appearance, suddenly constricted and terminating in a sharp membranous point, the lower scales largest, upper much smaller, closely aggregated and indistinct, covered with a dense white pubescence; depth $1\frac{1}{4}$ inch, breadth $\frac{3}{4}$ inch, length of peduncle $\frac{1}{2}$ inch. *Flowers* unknown. *Maturation* annual.

Hab. in "gulches" from 2500–4000 feet above the sea, in the Siskiyou Mountains, but chiefly on Cañon Creek, in Southern Oregon, lat. $42^{\circ} 10' N$.

In character this species approaches the group of which *Quercus Garryana*, Dougl.*, is the type, but differs entirely in the character of the cup, the size and lobation of the leaves, and in its being always a shrub. Like *Q. Garryana*, it prefers prairies and low lands; but the locality where I have seen it most plentiful was on spurs of the mountains, at elevations of 2500–4000 feet. It ought also to be noted that wherever found on level lands, these are situated at a much higher elevation than the open grounds affected by *Q. Garryana*. Though a shrub, it bears very plentifully; and the acorns are accounted very nourishing, the produce of forty or fifty bushes being sufficient to fatten a hog. As a species it is very distinct from any in North-west America, and, as far as I am able to learn, as yet undescribed. It is "*Quercus*, sp. (*d*), No. 249" of my catalogue (*l. c.*), and, like the former, was discovered by me in Sept. 1865. It belongs to the division *Lobatae* of the section *Eulepidobalanus* of the subgenus *Lepidobalanus* (Ersted, Section I. *Lepidobalanus*, A. DC. pro parte). I have the honour to dedicate it to Dr. A. S. Ersted, Professor of Botany in the University of Copenhagen, and Inspector of the Polytechnic School there, a distinguished traveller and naturalist, and the author of the able memoir on the classification of the oaks to which I have already referred.

3. *Quercus echinoides*, R. Br. Campst.

Leaf perennial, small, lanceolate, oblong-elliptical or rarely obovate, shortly petiolate, serrate (except near the base), entire or with only a sinuate margin; nerves hardly distinct above, very distinct inferiorly, reaching margin at base of teeth when present, superiorly glabrous or slightly pubescent, inferiorly covered with a cinereous down; length of leaf $1\frac{1}{2}$ inch, breadth $\frac{3}{4}$ inch, length of petiole $\frac{1}{2}$ inch. *Fruit* solitary or clustered in groups of 2–5 in axils of leaves, united to stem by a short thick peduncle, densely covered with cinereous pubescence, or sometimes sessile or subsessile;

* Hooker in 'Flor. Bor.-Am.' ii. p. 159.

glans ovoid, flattened inferiorly, and terminating superiorly in a short, blunt, distinct point; pale brown in colour; testa thick, superior portion covered with a dense caducous cinereous pubescence; length $1\frac{1}{10}$ inch, diameter $\frac{6}{10}$ inch: cup shallow hemispherical, and densely covered with filiform, stiff, patulate, and generally reflexed scales, frequently terminating in stiff recurved hooklets, covered with a dense cinereous pubescence, which extends down to the peduncle; interior pale brown, and covered with a long fibrous pubescence; depth $\frac{3}{10}$ inch, breadth at mouth $\frac{6}{10}$ inch, length of peduncle, when present, about $\frac{4}{10}$ inch. *Flowers* unknown. *Maturation* annual(?).

Hab. Cañon Creek, Oregon, and up to 8000 feet above the sea-level on other portions of the Siskiyou Mountains.

This species I first found plentiful, in the autumn of 1865, in Cañon Creek, a locality peculiarly prolific in species of Cupuliferæ and Coniferæ, as my collection (of which it is "*Quercus*, sp. (e), No. 250") testifies. It is a small shrub, growing to a great height above the sea-level, which *Q. densiflora*, H. & A., to which it is closely allied, does not. I am, however, doubtful whether it is not identical with that species, of which *Q. echinacea*, Torr. (Botany of Whipple's Pacific Railroad Report, p. 137), is only a lanceolate entire or sinuately entire variety, both forms being frequently found on the same tree. I am therefore doubtful about its specific identity when the type of the group to which it belongs is so variable. For the present, however, I may indicate it as new, the specific name pointing to its nearest ally. It will therefore belong to Ersted's subgenus *Eupasania* of the genus *Pasania* (*Quercus*, sect. *Pasania*, Miq., et *Chlamydoalanus*, Endl. pro parte) of the subfamily Castaninæ, the characters of which, however, require to be somewhat modified. *Q. echinoides*, among other characters, has much smaller leaves (which never assume the chestnut form) than *Q. densiflora*. The cup is deeper, and the acorns more ovoid and very bitter, so bitter, indeed, that nothing but squirrels will eat them; so bitter are they that even the black bear will not eat them, unless pressed by famine. The miners and hunters living in the section of country where it is found always look upon it as a separate species from the water-oak (*Q. densiflora*).

4. *Quercus oblongifolia*, Torr.

Leaf perennial, small, ovate or oblong-elliptical, quite entire, or rarely with a few serrations on the superior portion of the edge, and commonly only on one side; glabrous above and below, glaucous superiorly, darker green above, paler

below; veins not prominent; shortly petiolate, equal at base; length of leaf $1\frac{1}{10}$ inch, breadth $\frac{6}{10}$ inch, length of petiole $\frac{1}{12}$ inch. *Fruit* sessile, solitary at the end of the branches; glans ovate and pointed, light brown, covered with a cinereous pubescence; length 1 inch, diameter $\frac{1}{2}$ inch: cup hemispherical, turbinate, obtuse at base and very small, covered with ovate, convex, appressed scales; scales abruptly narrowing and terminating in a blunt membranous brown point; lower portion of the scales tumid and covered with a greenish pubescence, largest in the lower whorls, indistinct near the lip; cup thin, interior greenish white, with a slight whitish glistening pubescence; glans overtopping the cup fully $\frac{3}{4}$ of its length; depth $\frac{1}{12}$ inch, breadth at mouth $\frac{1}{2}$ inch. *Flowers* unknown. *Maturation* annual.

Hab. In gulches in dry situations among the mountains in Southern Oregon, to the height of 2000 feet.

The specimens, of which the above is the description, were found by me, in Sept. 1865, on the sides of gulches (or deep ravines) in Cañon Creek, in Southern Oregon, about 2000 feet above the sea, but fruiting so sparingly that I could only find two specimens in fruit. It is a bush about 3 feet in height, and evergreen, and is "*Quercus*, sp. (*g*), No. 252" of my catalogue (*l. c.*). Though I have provisionally stated it to be *Q. oblongifolia* of Torrey*, I am by no means certain that it is not undescribed. I have seen no specimens of Torrey's plant; but, judging from the plate he has given (*op. cit.*) and the description (notwithstanding some discrepancies), it, if not identical with, approaches that species more closely than any other yet described. If identical with that New-Mexican species, the range of *Q. oblongifolia* must be extended north twelve degrees. *Q. oblongifolia*, De Candolle thinks, is closely allied to *Q. grisea*, Liebm., another New-Mexican species. The species, in the form of the leaves, is no doubt allied to *Q. agrifolia*, Nees†, tho. these are in our species not so glaucous; but it differs widely in the large size of the acorns, in the shape of the cup, and in the form of the scales, and is quite distinct from that very variable species. The whole group of closely allied species, of which *Q. agrifolia* is the type, is one involved in much obscurity, and requires a thorough revision, many forms to which specific importance has been given being nothing more than local varieties, produced by climate, soil, or other causes not so apparent to the senses, and regarding the influence of which we are as yet ignorant.

* Sitgreave's 'Report of an Expedition down the Zuni and Colorado Rivers,' p. 173, pl. 19.

† Anales de Ciencias Naturales, tomo iii. p. 271.

It is often loaded with fruit when not more than three or four feet high, though it will reach the height of more than forty feet. Mr. Bolander, a most observant Californian botanist, remarks that on river-banks and in exposures close to the coast, where it is almost daily enveloped in fogs, it exhibits a considerable uniformity, and elsewhere it varies infinitely within the type. The figure of *Q. oxyadenia*, Torr., in Sitgreave's Report, p. 173, pl. 17, represents the ordinary form of it very well when the acorns are fully developed. However, in the valleys of the interior of Oregon and California (for it is not found north of 43° N. lat.) the shapes of the leaves of one and the same tree are very different: some have entire margins, while others have them pretty deeply dentated; often one side is entire and the other dentate. Some trees occur of which the young shoots have the leaves "coarsely sinuate or obliquely sinuate toothed; teeth very sharply acute, with a broad base, cuspidate-awned," thus agreeing with Kellogg's *Q. Morheus**, while the older branches have much smaller and entire leaves. In Anderson's Valley I saw several trees whose entire foliage agreed admirably with Kellogg's. Had I not seen that tree on the shore of Borax Lake exhibiting both forms, I should have been inclined to call it a good species. The cups of the acorns of both trees have the scales long and loosely imbricated, and the acorn is almost entirely immersed; but this is also the case with those of some trees that have a far different foliage. Thus far we have not been able to find good reliable characters. There are transitions in all parts, even in the same tree. As the tree has the habit of growing in groups, one might suppose that trees of one group at least should show a uniformity in botanical characters: but this is not so; just the very extremes may be found in one and the same group. On dry gravelly hill-sides in the interior this tree presents still another form, *Q. Wislizeni*, Englm.† The acorns ripen annually, and differ also essentially in shape and size. Soil, climate, and exposure offer in this case no satisfactory explanation for so great a variation in one species‡. I am inclined to believe that it must be attributed to some intrinsic peculiarity which would lead certain species both of plants and animals to vary so much from their typical form as to almost lead one to believe that we see therein the species struggling to break off and establish new forms or races, allied to but differing specifically from the parent species.

* Proc. California Acad. Nat. Sciences, vol. ii. p. 36.

† DeCandolle's Prodrômus, vol. xvi. p. 67.

‡ Proc. Cal. Acad. Nat. Sc. vol. iii. p. 229.

Quercus oblongifolia, or at least the form which I have supposed to be it, appears to belong, according to Ersted's recent observations in his memoir on *Q. agrifolia* (Om den kristornbladede Eg fra Californien *), to his section *Stenocarpæa* of the subgenus *Erythrobalanus* of the restricted genus *Quercus*.

5. *Quercus Jacobi*, R. Br. Campst.

I will not attempt in this place to do more than indicate the above species; for though it came under my notice as early as 1863, through a curious concurrence of accidents I have never yet been able to obtain sufficient material for the publication of a complete diagnosis of the species. The only place where I ever observed it was in the south-eastern district of Vancouver Island, on the lawn and close to the house of Sir James Douglas, along with trees of its close ally, *Q. Garryana*, which afforded excellent material for comparison. The leaves of the species under notice, instead of being long and with three or four almost equal shallow lobes, acutely cut at the bottom, and the leaf of about equal breadth throughout, was more palmate, with five lobes, deeper and smaller than in *Q. Garryana*, the basal ones being broadest, the breadth of the leaf greatest at the middle. The form of the tree is also different. Instead of, as in *Q. Garryana*, being bare of branches for about twelve feet, it branches out near the base, the branching being much more umbrageous than in *Q. Garryana*. I was informed that the acorns were also different; and the one comes into leaf and flower later than the other. Sir James Douglas, who was at that time Governor of British Columbia and Vancouver Island, had for many years noticed these trees growing alongside of *Q. Garryana*, and was quite convinced of the specific difference of the one to which, in memory of his long and unvarying kindness to me and other naturalists during our exploration of North-west America, and in respect for the character of the founder of our North-Pacific colonies, I have attached his name. For the reasons mentioned, I will not at greater length describe this species or, at least, marked variety; but, as I hope to obtain in a short time sufficient materials for that purpose, I will postpone this until these are put into my possession.

In all, seventeen species of Cupuliferæ find a place in the flora of the region to the west of the Rocky Mountains, northward of and including Upper California, which immense extent of territory, so varied in its climate and physical features,

* Videnskab. Meddelelser fra den Naturhist. Forening i Kjøbenhavn, 1869, p. 59.

is generally known as North-west America. As I have already described and figured most of these species for a general work on the forests of that country (now in course of publication), I need not even mention them in this place; and for the same reason I have omitted to give figures of the species I have here described, these figures, with more extended descriptions, being intended to find a place in the same work.

Edinburgh, March 1, 1871.

XXXI.—On two new *Species of Birds from Moupin, Western Szechuen*. By ARMAND DAVID.

Accentor multistriatus, n. sp.

Like *A. strophiatius*, Hodgs., of the Himalayas, but without rufescence on the upper parts, and with a narrower pectoral band; sides of the neck cinereous, with numerous black streaks; flanks and vent pale buff, covered with blackish-brown streaks, and the oblong spots on the crown, hind neck, and back darker and more abundant than in its ally. Somewhat larger in size, with larger legs and feet. This bird forms a good second species of this peculiarly coloured group of *Accentor*. Length 6 inches; wing 2·6, tail 2·4. Iris nut-brown.

Hab. Moupin, Western Szechuen.

Cinclosoma Artemisiae, n. sp.

In size, form, and style of coloration very similar to *C. ocellatum*, Vigors, of the Himalayas. Head and broad patch on the throat black, leaving the chin, lores, and under the eye buff-coloured, and a partial half-eyebrow and a spot in rear of the ear-coverts white. Neck and underparts buff, a little rufous near the edge of the black gorget; back of the neck, breast, and flanks banded on each feather near its tip with an undulating black bar. Scapulars and back as in *C. ocellatum*, but with broader and yellower tip-spots and with much narrower black bars. Wings and tail as in its ally, but with the rufous more mixed with yellow. Length 12·75 inches; wing 5, tail 6·5. Bill variable in length; iris yellow.

Hab. Moupin, Western Szechuen.

Genoa, Feb. 20, 1871.